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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,772	01/23/2002	Willem Den Boer	8733.214.20	7226

30827 7590 12/18/2002

MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

TRINH, MICHAEL MANH

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,772

Applicant(s)

BOER ET AL.

Examiner

Michael M Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

*** This office action is in response to the Application filed on January 23, 2002. Claim 1 is pending.

Specification

1. The specification, page 2, is objected to because of the following reasons: Information of related application should be updated to include 08/630,984, U.S. Patent No. 6,372,534, and abandonment status for 08/470,271.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 19, recites "vias or contact holes". However, using the alternative term "or" in the phrase "vias or contact holes" renders meaning and scope of the claimed invention, as a whole, being unclear and indefinite for what is being exactly claimed. As understood and in light of the specification, "vias" is the same meaning as "contact holes".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Wakai et al (5,003,356).

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Wakai et al '356 teach a method for forming a liquid crystal display including an array of thin film transistors (TFTs), which method (at Figs 4A-14C; col 3, line 55 through col 12) comprises at least the steps of: providing a first transparent substrate 101 (fig 4A; col 5, lines 1-10); forming a plurality of TFT gate electrodes 102 (figs 4,5) connected to gate lines 113 or address lines (fig 5; col 6, lines 7-58); forming a gate insulating layer 103 over the gate electrodes; forming and patterning a semiconductor layer 104 over each of the gate electrodes (col 5, lines 10-31); forming TFT source and drain electrodes 106,107 with TFT channel therebetween and a plurality of corresponding drain lines 114 or address lines, thereby forming an array of TFTs or an array of semiconductor based switching elements on the first substrate; depositing a photo-imageable polyimide insulating film 108,118 (col 5, lines 45-58; cols 7-8) over a substantial portion of the substrate so as to cover substantial portions of the gate and drain lines and the TFTs in the array, wherein the polyimide layer inherently has a dielectric constant of less than about 5, and wherein the insulating film is formed by spin coating and having a thickness of up to .8 micron (col 5, lines 46-58; col 7, lines 25-41; col 4, lines 55-56); photo-imaging the polyimide insulating layer so as to form a plurality of vias or contact holes therein, at least one via corresponding to each TFT in the array; forming a plurality of pixel electrode over the insulating layer so that each pixel electrode is in communication with the source electrode of a corresponding TFT through one of the vias; and forming the pixel electrodes on the substrate so that each pixel electrode overlaps one of the drain and gate lines so that to reduce cross talk (col 6, line 59 through col 7, line 19; col 4, lines 30-56), whereby the pixel electrodes are insulated from the lines in the overlap areas by the photo-imaged polyimide insulating layer.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

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various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al (5,585,951) taken with Wakai et al (5,003,356).

Noda teaches teach a method for forming a liquid crystal display including an array of thin film transistors (TFTs) comprising at least the steps of: providing a first transparent substrate (figs 2A-2G); forming an array of semiconductor base switching elements and corresponding address lines (figs 14,17,18); spin coating a planar organic photo-imageable insulating polyimide layer or photosensitive polyimide resin 1784 and substantially transparent (col 9, line 53 through col 10, line 14; col 12, lines 31-67; col 16, lines 42-63; fig 17); forming contact hole in the insulating polyimide layer by photolithography process, wherein irradiating the polyimide insulating layer with ultraviolet (UV) rays and developing, curing, and removing the unexposed areas is inherent in the photolithography process so as the vias can be formed in the polyimide layer; and forming pixel electrodes 1787 in the contact holes, over the insulating layer 1784, and communicating with the switching elements, wherein each pixel electrode overlaps one of the address lines (fig 14,12; col 14, lines 25-55; col 15, lines 20-45), and wherein the pixel electrodes are insulated from the address lines in the overlap areas by the photosensitive polyimide insulating layer so as to reduce crosstalk.

Noda lacks to form the transistor as an inverted TFT and processing steps thereof.

However, Wakai teaches to form the LCD device by using either planar TFTs or the inverted TFTs, which method for forming a liquid crystal display including an array of thin film transistors (at Figs 4A-14C; col 3, line 55 through col 12) comprises at least the steps of: providing a first transparent substrate 101 (fig 4A; col 5, lines 1-10); forming a plurality of TFT gate electrodes 102 (figs 4,5) connected to gate lines 113 or address lines (fig 5; col 6, lines 7-58); forming a gate insulating layer 103 over the gate electrodes; forming and patterning a semiconductor layer 104 over each of the gate electrodes (col 5, lines 10-31); forming TFT source and drain electrodes 106,107 with TFT channel therebetween and a plurality of

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corresponding drain lines 114 or address lines, thereby forming an array of TFTs or an array of semiconductor based switching elements on the first substrate; depositing a photo-imageable polyimide insulating film 108,118 (col 5, lines 45-58; cols 7-8) over a substantial portion of the substrate so as to cover substantial portions of the gate and drain lines and the TFTs in the array, wherein the polyimide layer inherently has a dielectric constant of less than about 5, and wherein the insulating film is formed by spin coating and having a thickness of up to .8 micron (col 5, lines 46-58; col 7, lines 25-41; col 4, lines 55-56); photo-imaging the polyimide insulating layer so as to form a plurality of vias or contact holes therein, at least one via corresponding to each TFT in the array; forming a plurality of pixel electrode over the insulating layer so that each pixel electrode is in communication with the source electrode of a corresponding TFT through one of the vias; and forming the pixel electrodes on the substrate so that each pixel electrode overlaps one of the drain and gate lines so that to reduce cross talk (col 6, line 59 through col 7, line 19; col 4, lines 30-56), whereby the pixel electrodes are insulated from the lines in the overlap areas by the photo-imaged polyimide insulating layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of forming an LCD of Noda by alternatively substitute the planar TFTs with the inverted TFTs as taught by Wakai, because either TFT types can be alternatively used as high speed switching elements.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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8. Claims 46,50-51 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,372,534 and claims 1-10 of U.S. Patent No. 6,376,270

Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claim 1 of this application is drawn to the same subject matter for forming a thin film transistor array, wherein employing an organic insulating film or a photo-imageable polyimide insulating film having low dielectric constant for reducing crosstalk in forming a liquid crystal display device would have been obvious, wherein alternatively using a photosensitive polyimide layer or a non-photosensitive polyimide layer is well known in the art. Using a photosensitive polyimide or a photosensitive BCB having a dielectric constant of less than 3.0, with a predetermined thickness would have been obvious and known to one of ordinary skill in the art because of the desirability to reduce crosstalk. Additionally, they are not patentably distinct from each other because the present claim 1 of this application is drawn to the same subject matter for forming a thin film transistor array, and is broad enough to encompass the scope of claims 1-12 of the Patent 6,372,534,


Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Trinh whose telephone number is (703) 308-2554. The examiner can normally be reached on M-F from 8:30 Am to 4:30 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Oacs


Michael Trinh
Primary Examiner